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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/507,769	02/18/2000	Richard Kent Passman	D-20866	8623

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Praxair S T Technology Inc  
Law Dept - M1557  
39 Old Ridgebury Road  
Danbury, CT 06810-5113

EXAMINER

THOMPSON, CAMIE S

ART UNIT PAPER NUMBER

1774

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/507,769	PASSMAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Camie S Thompson	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment filed December 4, 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5-7 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7 and 9-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \*   c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

### DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed December 4, 2003 have been acknowledged.
2. Examiner acknowledges amended claims 1 and 11.
3. Examiner acknowledges cancelled claims 4 and 8.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 5 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Quigley, U.S. Patent Number 5,324,248.

Quigley discloses a machine roll that has a roller sleeve structure, which comprises an outer layer and an interior body layer of fiber-reinforced polymer (see abstract). Additionally, the sleeve can have one or more interface layers, preferably of a composite, disposed in between the outer and body layers as per instant claim 1 (see abstract). Column 6, lines 45-48 of the reference disclose that the outer employs a thermally sprayed metal as per instant claim 1. Quigley also discloses that the two interface layers are typically of fiber reinforced polymer and the intermediate interface layer is designed to provide a transition between the adjoining body layer and the outer layer as per instant claim 1 (see column 7, lines 13-25). It is also disclosed in the

Art Unit: 1774

Quigley reference in column 6, lines 48-50 that the outer layer has a metal substrate with a ceramic overcoat as per instant claim 1. The reference also discloses that the sleeve is preferably fabricated with one or more plies of fibers in an epoxy resin as per instant claim 2 (see column 2, lines 8-37). In another embodiment of the Quigley reference, the outer layer of composite material typically contains ceramic particulate matter such as silicon carbide as per instant claim 4 and 5 (see column 6, lines 52-68). The reference also discloses that the ceramic particulate matter in the outer layer has a thickness of about 0.010 in as per instant claim 9 (see column 8, lines 25-32).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 6-7 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quigley, U.S. Patent Number 5,324,248 in view of Hatch et al., U.S. Patent Number 5,840,386 and in further view of Fujita et al., U.S. Patent Number 5,296,582.

Quigley discloses a machine roll that has a roller sleeve structure, which comprises an outer layer and an interior body layer of fiber-reinforced polymer as per instant claims 1 and 15 (see abstract). Quigley also discloses that the machine roll is used in machines that manufacture paper as per instant claim 16. Additionally, the sleeve can have one or more interface layers,

Art Unit: 1774

preferably of a composite, disposed in between the outer and body layers as per instant claim 1 (see abstract). Column 3, lines 19-24 and column 6, lines 45-48 of the reference disclose that the outer layer employs a thermally sprayed metal such as chromium oxide as per instant claims 1 and 13. Quigley also discloses that the two interface layers are typically of fiber reinforced polymer and the intermediate interface layer is designed to provide a transition between the adjoining body layer and the outer layer as per instant claim 1 (see column 7, lines 13-25). It is also disclosed in the Quigley reference in column 6, lines 48-50 that the outer layer has a metal substrate with a ceramic overcoat as per instant claim 1. It is shown in the reference in column 3, lines 9-18 that the outer layer of the sleeve has nickel or stainless steel as per instant claim 13. The Quigley reference does not disclose the thickness of the inner and outer layers. Hatch teaches a liquid transfer roll that is made from a sleeve adapted to be mounted on a mandrel where there is an inner layer of the sleeve and an outer layer (see abstract). Hatch teaches that the inner layer has a thickness in the amount of 0.1 to about 1 mm across the diameter of the sleeve and the outer layer has a thickness in the range of 1 mm to about 10 mm as per instant claims 10 and 12 (see reference claim 11 and column 5, lines 22-37). The thickness of the layers affects the mounting of the sleeve. Therefore, it would have been obvious to one of ordinary skill in the art to have the thickness for the first layer be .002 to 0.127 mm and the thickness of the outer layer be 0.050 to 3.2 mm in order to permit the mounting and demounting of the sleeve on a mandrel as shown by the Hatch reference in column 5, lines 22-37. The reference does not disclose the weight percent of the particulate in the outer layer and the tensile strength of coating that is attached to the polymer substrate as per instant claims 6-7. These are properties that can be easily determined by one of ordinary skill in the art. It is obvious to modify the thicknesses of

Art Unit: 1774

the polymeric layers because they are the result of routine experimentation. The experimental modification of prior art in order to optimize operation conditions fails to render claims patentable in the absence of unexpected results. The weight percent of the particulate, the tensile strength of the coating affect the mechanical strength of the sleeve and thus are optimizable.

Discovery of optimum values for a result effective variable involves only routine skill in the art in re Boesch, 617 F2. 2d 272, 205 USPQ 215 (CCPA). Therefore, it would have been obvious to one of ordinary skill in the art to have the limitations as claimed in order to provide a high mechanical strength to the sleeve (see column 7 of the reference).

Although Quigley discloses that the plastic used is an epoxy resin, the reference does not disclose the use of bisphenol F-type epichlorohydrin and diethylenetriamine. Fujita teaches epoxy resins that are used in various composite materials (see column 8, line 60-column 9, line 10). In addition, Fujita teaches an epoxy resin composition comprising bisphenol F/epichlorohydrin and diethylenetriamine as per instant claim 3 (see column 5, lines 3-7 and column 6, line 67-column 7, line 16). The type of epoxy resin used in composite materials affect the fragility of the composite. The epoxy resins in the Fujita reference show improved tensile characteristics and chemical resistance (see column 1, lines 51-61). Therefore, it would have been obvious to one of ordinary skill in the art to use bisphenol F/epichlorohydrin and diethylenetriamine as the epoxy resin in order to obtain excellent peel strength.

***Response to Arguments***

8. Applicant's arguments filed December 4, 2003 have been fully considered but they are not persuasive. Applicant argues that claim 8 was not rejected. In the final office action, claim 8 was rejected under 35 U.S.C. 103(a) over Quigley in view of Hatch and in further view of Fujita. Also, applicant argues that claim 4 was not rejected. Claim 4 was rejected under 35 U.S.C. 102(b) as being anticipated by Quigley. The incorporation of claims 4 and 8 into amended claim 1 does not traverse the rejection. Both claims 4 and 8 were rejected in the final office action. Applicant has not provided any evidence to the contrary that the instant application is different from that of Quigley, U.S. Patent Number 5,324,248. The Quigley reference discloses a composite material that comprises a fiber reinforced polymer substrate with a first polymeric layer that coats the substrate and is free of fibers and particulate and a second polymeric layer that coats the first polymeric layer wherein the second polymeric layer comprises polymeric matrix such as epoxy and particulate, as does applicant. The Quigley reference is the same as the instant application.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1774

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached at (571) 272-1526. The fax phone numbers for the Group is (703) 872-9306.

CYNTHIA H. KELLY  
SUPERVISOR  
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*Cynthia H. Kelly*